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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/510,980	10/13/2004	Werner Liedy	PAT 2480W-2	2203
42534	7590	05/30/2008		
BORDEN LADNER GERVAIS LLP			EXAMINER	
Gail C. Silver			TAL XIUNYU	
1100-100 QUEEN ST				
OTTAWA, ON K1P 1J9			ART UNIT	
CANADA			PAPER NUMBER	
			1795	
			NOTIFICATION DATE	
			DELIVERY MODE	
			05/30/2008	
			ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/510,980

Applicant(s)

LIEDY, WERNER

Examiner

Xiuyu Tai

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 October 2004.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-17, 23 is/are pending in the application.
4a) Of the above claim(s) 1-9, 11, 12 and 18-22 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 14-17 and 23 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 13 October 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date See Continuation Sheet
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :1/12/2005, 6/10/2005, & 5/6/2008.

DETAILED ACTION

Election/Restrictions

1. Claims 1-9, 11, 12, and 18-22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 4/22/2008.
2. Applicant's election with traverse of claims 14-17, and 23 in the reply filed on 4/22/2008 is acknowledged. The traversal is on the ground(s) that the special technical feature is not "microradiators". This is not found persuasive because where the group of inventions is claimed in one and the same international application, the requirement for unity of invention referred to in Rule 13.1 shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression "**special technical features**" shall mean those technical features that define a contribution which each of the claimed inventions considered as a whole , **makes over the prior art**. The inventions listed as Groups I, II and III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, although they share the special technical feature, this special technical feature does not define a contribution over the prior art for the following reasons: "microradiators" is the special technical feature linking Group I, Group II, and Group III. "Microradiators" suitable for absorbing the electromagnetic radiation and for emitting light is known in the art, such as U.S. 6,509, 188 or WO

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0,061,719. Accordingly, the special technical feature does not provide a contribution over the prior art. Therefore the restriction is appropriate.

The requirement is still deemed proper and is therefore made FINAL.

Specification

3. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.
4. The disclosure is objected to because of the following informalities: the specification does not comply to arrangement of the specification.

Appropriate correction is required.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

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- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 14 recites the limitation "the phosphorescent particles" and "the radiation source again" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

- 1. Determining the scope and contents of the prior art.
- 2. Ascertaining the differences between the prior art and the claims at issue.
- 3. Resolving the level of ordinary skill in the pertinent art.
- 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 23, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poncelet (U.S. 5,972,831) in view of Ogata et al (U.S. 6,107,241).
10. Regarding claim 23, Poncelet discloses a method for the photocatalytic treatment of effluents comprising a gaseous or aqueous solution of organic compounds to be destroyed (abstract). The method comprises steps of: (1) providing solid photocatalysts (i.e. synthesizing TiO_2 , col. 4, line 41-46 & col. 5, line 62-63); (2) suspending the photocatalysts in a liquid medium (col. 4, line 1-5; col. 6, line 1; col. 5, line 40-44).
11. Poncelet fails to teach steps of providing microradiators and activating the photocatalysts by means of microradiators. However, Ogata et al disclose a photocatalytic body having a good photocatalytic function. Ogata teaches that when a photocatalytic body is made of a mixture of the particles of a light storage-type light emitting ceramic with a photocatalyst, the photocatalytic semiconductor of photocatalytic body is excited by means of UV light generated by consumption of the energy accumulated in the particles of the light storage-type light emitting ceramic (col. 5, line 49-58). As defined in the reference, a light storage-type light-emitting ceramic is one which takes an external energy therein and emits light while releasing once taken energy (col. 5, line 30-33). In other words, Ogata teaches steps of providing particles of a light storage-type light-emitting ceramic (i.e. LumiNova and KEPRUS, col. 5, line 33-35) and activating the photocatalysts by mixing them with particles of a light storage-type light-emitting ceramic (col. 5, line 49-58). Therefore, it would be obvious for one having ordinary skill in the art to combine the method of Poncelet with that of Ogata in

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order to continue the photocatalytic function if the UV irradiation against the photocatalytic body is interrupted in the light of the teaching of Ogata (col.5, line 59-60).

12. Regarding claim 14, with the combined teaching of Poncelet/Ogata, the mixture of a photocatalyst and a light-storage light-emitting ceramic are suspended in an aqueous solution and exposed to the radiation of a halogen lamp to destroy the pollutant, which reads on the instant claim.

13. Regarding claim 16, Poncelet specifically discloses a method for destroying organic compounds in aqueous solution (col. 2, line 17-20 & col. 5, line 41-44), reads on the instant claim.

14. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Poncelet (U.S.5,972,831) and Ogata et al (U.S. 6,107,241) as applied to claim 14 above, and further in view of Stone (U.S. 4,210,953).

15. Regarding claim 15, Poncelet/Ogata teach to separate two phases between solid particles and aqueous solution when all or practically all organic compounds are destroyed (col. 4, line 5-8 of Poncelet), but fail to teach to separate between photocatalysts and phosphorescent particles (i.e. a light-storage light-emitting ceramic) and to recharge phosphorescent particles. However, Stone discloses a flashlight having a self-illuminated case (see Abstract). The reference teaches that the inside of the case 42 is coated with a phosphorescent material (Figure 1; col. 2, line 50-51). It further states that the light-emitting retention of a phosphorescent material varies from one to ten hours and a phosphorescent material is regenerated by exposure to visible light (col. 2, line 53-55). Therefore, one having ordinary skill in the art would have realized to

further separate phosphorescent particles from the solid phase containing phosphorescent particles and photocatalyst after the solid phase being separated from the aqueous phase as taught by Poncelet/Ogata in order to effectively regenerate the light-storage light-emitting ceramic, hence effectively destroying organic compounds in an aqueous solution while using Poncelet/Ogata method.

16. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Poncelet (U.S.5,972,831) and Ogata et al (U.S. 6,107,241) as applied to claim 23 above, and further in view of Fu et al (U.S. 6,287,993).

17. Regarding claim 17, TiO_2 is used as a catalyst in the method of Poncelent (col. 4, line 41-46 & col. 5, line 62-63), but Poncelet/Ogata fail to teach microradiators that are glass particle doped with rare earth elements. However, Fu et al disclose long-lasting phosphorescent glass-ceramic containing SiO_2 and ZnO as basic ingredient and rare earth elements as an activator (abstract; col. 5, line 8-9 & 64-66). The reference states that a glass-ceramic containing rare earth element has a long-lasting phosphorescence, excellent chemical durability and light-proof characteristics (col. 1, line 63-65).

Therefore, it would be obvious for one having ordinary skill in the art to utilize a long-lasting phosphorescent glass—ceramic as taught by Fu in lieu of the light storage-type light-emitting ceramic of Poncelent/Ogata in order to realize better long-lasting phosphorescence characteristics from glass-ceramic of Fu while carrying out the method of Poncelet/Ogata.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiuyu Tai whose telephone number is 571-270-1855. The examiner can normally be reached on Monday - Friday, 7:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/X. T./
Examiner, Art Unit 1795

5/12/2008

/Alexa D. Neckel/

Supervisory Patent Examiner, Art Unit 1795